

# AMERICAN VETERINARY REVIEW.

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# CONTENTS.

	PAGE.
ORIGINAL ARTICLES.—Contribution to the Pathology and Ætiology of Human and Animal Variolæ ; with some remarks on Intrauterine Vaccination. By F. S. BILLINGS.....	95
Typhoid Fever in Horses. By A. DRINKWATER, V.S.....	102
Etiology of Spavin. By WILLIAMSON BRYDEN, V.S.....	106
Abortion by Cows. By J. GERTH, Jr.....	109
EDITORIAL.—Glanders .....	116
JURISPRUDENCE.—Veterinary Jurisprudence. By D. McEACHRAN, F.R.C.V.S.....	118
EXTRACTS FROM FOREIGN PAPERS.—Ventral Hernia in the Horse... ..	122
Amputation of the Uterus in a Cow.....	123
Epizootic amongst Cats produced by the <i>Toxina Crassicolis</i> .....	124
Treatment of the Cartilaginous Quittor by Concentrated Carbolic Acid .....	124
Indigestion from Water treated by Alcohol.....	125
On Septicæmæ—Conclusions. By Mr. PASTEUR.....	125
Manner of Collecting the Virus of Pleuro-Pneumonia, and Mode of Inoculation .....	126
Central Society of Veterinary Medicine of Paris.....	127
CORRESPONDENCE.—Infectious Pleuro-Pneumonia.....	127
Quackery in the Profession.....	129
SANITARY LEGISLATION.—An Act to Prevent the Spreading of Contagious and Infectious Diseases among Domestic Animals (Massachusetts).....	132
VETERINARY CONGRESS.....	133
EXCHANGES AND JOURNALS RECEIVED.....	134

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# AMERICAN VETERINARY REVIEW,

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## ORIGINAL ARTICLES.

### A CONTRIBUTION

TO THE PATHOLOGY AND ÆTIOLOGY OF HUMAN AND  
ANIMAL VARIOLÆ; WITH SOME REMARKS ON  
INTRAUTERINE VACCINATION.

By PROF. DR. O. BOLLINGER,

TEACHER OF PATHOLOGY AND PATHOLOGICAL ANATOMY AT THE ROYAL UNIVERSITY AND THE  
VETERINARY INSTITUTE OF MÜNCHEN.

*From the German.*

By F. S. BILLINGS.

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[The right to translate the above is reserved by the publisher, but on application to them, I at once received the most cordial permission from them, as well as from Prof. Bollinger, to whom in the name of the American Veterinary profession I hereby tender my sincere thanks. The original may be found in the "Sammlung Klinischer Vorträge" (a series of clinical lectures) of which this is No. 116. This collection is published by Messrs. Breitkopf and Haertel of Leipzig, and for their courtesy I can do no more than call the attention of those among us, or in the medical profession who read German, to this very excellent and in some respects, unequalled series, which comprises lectures on special subjects, which have been delivered, as well as others which will be delivered in the progress of time by many of the most noted specialists in Germany. The cost of each series is 15 marks, \$4 a year, and comprises 30 lectures.—B.]

When we seek to systematize the pests of man and animals with regards to their original development and their reciprocal transmission to one and the other specie, we find it very conformable to divide them into three large groups: 1. *The known human epi and endemics*; 2. The purely infectious zoonoses of which some may be transmitted to man; 3. Those which in general affect both man and animals, to which especially belong the variolæ, and perhaps diphtheria.

Not only the individuals of the single species, but the latter also deport themselves in a very variable manner towards the contagia of these infectious diseases. While the animals remain to all intents immune from the epidemic diseases of man, even *cholera* and *typhus*, all assertions to the contrary, man is susceptible to the contagium of quite a number of animal pests; as examples, malleus, anthrax, rabies and aphthæ epizooticæ. We find very great differences with regard to the disposition (susceptibility) of the different species for the contagii of the zoonoses: while a succession of animal-species, inclusive of man possess an equal susceptibility for the contagium of rabies; and swine and ruminants possess a great susceptibility for that of aphthæ epizooticæ; man possesses but little, and solipeds and carnivora still less. Herbivora are very susceptible to the action of the contagium of anthrax, while the omnivora, inclusive of man, are much less, and carnivora have but a very slight disposition for the same. Malleus is in general limited to solipeds, the remaining animal creation, inclusive of man, having but a relatively insignificant susceptibility to the contagium of the same; cattle none. While the contagium of rinderpest sometimes affects sheep and goats, all other animals remain immune from the action of the same pleuro-pneumonia bovine contagiosa is limited exclusively to cattle as syphilis to man.

In this direction the variolæ offer the most attraction, because they not only attack man, but nearly all the domestic animals, and because of the genuine culture historical importance, which the artificial transmission of an animal variola to man has won in a prophylactic point of view; a service which has rendered the name Jenner immortal, in that the sting is thus, in part at least, removed from perhaps the most formidable scorpion which has tortured the human race.

It becomes us now to seek to acquire a general idea of the present stand of the variolic theory, from the standpoint of general pathology, and thereby to critically consider their reciprocal relation and especially their reciprocal transmission to other species and (vice-versa retrovaccination). This territory is however so extensive, and many questions so imperfectly considered, that the result of our study must necessarily be more or less im-



perfect. However, I am convinced that from this comparative study of the variolæ, we shall gain a general idea, which will offer much of importance for the pathology of the same, as well as much of great practical value.

Before we undertake to consider the different form of variola in special, it may be well to consider some general principles, which may serve to guide us in our comparative consideration of the variolæ of man and animals. The previous plan, of looking upon the variolæ as they come to pass by the different species of animals and man, as of equal importance "auf gleiche Linie zu stellen," appears to me entirely unjustifiable. When for instance authors speak of and consider variola humana, ovina, caprica and canina as the same, and throughout analogous processes, they completely overlook the fact that the two first—those of man and sheep—represent well characterised pests, the continuity and descent of which in concrete cases is in general clearly manifest, because "*variola humana vera*" always generates from pock diseased men, and "*variola ovina*" always proceeds from variolic diseased sheep. As a rule we find but little difficulty in proving infection in these cases. The question is quite different with regard to variola caprina, canina, equina, and vaccina (bovina); they scarcely ever assume a pest-like form, they appear here and there in a form much more resembling sporadic diseases, they are limited to individuals, or at the most to single herds; they are infrequent occurrences. In my opinion it is not difficult to explain this fundamental difference in the eruption of the individual form of variola. After the eminent transmissibility of the variolic contagii to other species has been confirmed, the most important question which then springs up in the consideration of the single forms, is what cause or causes lead to their generation? We have ever to decide, if we have before us a variolic form peculiar to the animal species in question, or one which has only been transmitted accidentally to the same, as it were, a wandered form of disease.

In the last case it would perhaps deport itself when a comparison is allowable—in a similar manner, as cysticercus cellulosa when present by man or dog, or when we meet with malleus or anthrax by man. We may assume or not, that the contagium

of variola originally proceeded from one primeval form, yet it cannot be denied, that the contagium of *variola humana vera*, as well as that of *variola ovina*, possesses especial affinities, the first to the organism of man, the latter to that of sheep, and that both diseases present themselves as well characterized forms in a natural historical sense, which may be perhaps related to each other; even homologous, but in no ways identical. And even though we may succeed, by inoculation of *variola humana vera*, or of *vaccina* upon sheep, in generating a disease by the latter, the phenomena of which strongly resemble those of *variola ovina*, yet we have by no means proven thereby, that *variola humana*, *vaccina* (*bovina*) and *ovina* are identical diseases.

From these general remarks, we will now give our attention more especially to our thema; and we find *variola* appearing *as a severe and general infection by man and sheep*, as a general, but weakened form again by man (*variolois*) and by swine; *as a light and local process by cattle and horses*, while the goat possesses a susceptibility as well for the general *variola* of sheep, as for the localized form of cattle.

In general we may consider the following as axiomatic, viz: *the domestic animals have either none or a very insignificant disposition to accidental infection from the contagium of variola humana vera*. This is amply proven by the history of every variolic epidemic, by which occasions enough are given to the infection of the domestic animals. I shall have occasion to notice the isolated observations of Ceely, Dinter and others, which make it probable, that a spontaneous, accidental, (not experimental) transmission of human *variola* to cattle is possible. Accidental transmission of human *variola* to monkeys has also been reported; also to swine, and lately it is reported to foals (Scholz.) During 1871 and 1872, a severe variolic epidemic was raging, and Scholz observed a pustulous exanthema by foals, at the same time and on the same farms where human *variola* prevailed, which continued and took a similar course with the latter, and which failed on farms in the same district where the same did not come to eruption. The exanthema was distributed over the entire surface of the body, and only in isolated cases was its eruptions anticipated

by the appearance of the disease in its course in 1871. The transmission of the disease ceased attended to the foals to other animals. *variola* to cattle. The disease strong in these very instances of *variola* was not the vaccine work of inoculatory process.

Sheep possess the disease of human *variola* only 10 per cent. of the population of ovine (Marson and others) transmitted by a sheep for a diseased man. A sheep was diseased upon the wool perceptible.

Viborg has observed the transmission of *variola* from man to swine at Alfort, where the contagium came in relation to the consumed parts of the animal. It appeared upon the skin, empty from the erupting artificiality of the blood of the inspired air inspired from the same. The positive results from men. The

by the appearance of a general disturbance. The disease took its course in 16 to 20 days without any lethal terminations occurring. The transmission in this case was interposed by the variolic diseased attendants of the foals, and extended from the single infected foals to others. On the contrary, we are enabled to transmit *human variola* to *cattle* by way of inoculation, and thereby generate a disease strongly resembling the pure *vaccina*. We shall return to these very important experiments by the discussion of the genesis of *variola vaccina*, and will only here remark, that the *variola vaccine* won in this way generates, reinoculated to man, a local inoculatory pustule—*without general exanthema*.

Sheep possess an insignificant susceptibility to the contagium of human *variola*; the inoculation with variolal-lymph complicates only 10 per cent., and it is asserted that the disposition to the action of ovine, or vaccine, is not in any way checked thereby. (Marson and Simonds) Gohier and Lullin have also successfully transmitted human *variola* to sheep. Kuchenmeister bound before a sheep for an hour or so, a sack containing a shirt which a pock-diseased man had worn, and on the fifth day the appetite of the sheep was disturbed, and on the eighth a distinct variolic eruption upon the woolless parts of the median surface of the thighs was perceptible.

Viborg has reported the successful transmission of *variola humana* to swine, and the same has been proved by experiment in Alfort, where they covered a cow with clothing impregnated with the contagium of human *variola*, which fell off from the same, and came in relation with some swine, which tore, and, perhaps consumed parts of the same; in from 8 to 10 days a variolic eruption appeared upon the swine; none of the 40 to 50 present being exempt from the same. Zuelzer has recently been successful in generating artificial *variola* by monkeys, by means of inoculation with the blood of *variola*-diseased men, as well as by causing them to inspire air impregnated with contagium from eschars removed from the same. Greve also reports being successful in receiving positive results three times, from eight dogs which he inoculated from men. The three cases ended lethally..

HOW DOES MAN DÉPORT HIMSELF TOWARDS THE DIFFERENT ANIMAL  
VARIOLÆ.

We observe that an accidental or spontaneous transmission of *variola ovina* to man does not take place, that the contagium of the same is not capable of causing infection if inspired by man, while by means of accidental injury, and occasional, but very seldom local infection of man with ovine may take place, which may be successfully re-inoculated to sheep. On the contrary, numerous experiences have proven that man is susceptible to infection from the contagium of *variola vaccina* or *equina*, let the inoculation be accidental or intentional; they cause a local infection, and protect, for a certain time, the infected man from an attack of *variola humana vera*. The accidental transmission of *variola vaccina* to the hands and arms of milkers belong to the most frequent occurrences in this direction.

Most intimately related to human variola of all the animal forms is undoubtedly *variola ovina*, which we will now consider. When we subject both of these processes, which are in detail analogous, to a parallel comparison, we find the origin of both developed in darkness. The first report of the outbreak of *variola ovina* are derived from about the same time that *variola humana* first appeared in Europe, viz: The 15th century, (according to Fleming (*Animal Plague*) *v. ovina* broke out in England about 1275, and perhaps two years previously); they were probably introduced from the Orient, and are at present distributed over nearly the whole of Europe. Seldom in the southern parts of Europe, they are frequent in the eastern parts of the same, in Russia, Hungary, North Germany, France and England. *Variola ovina* presents in its phenomonology and its typical course the greatest correspondence with *v. humana*. After an incubation's period of 6 to 9 days, we may perceive upon the less-worked parts of the body, the eruption of an exanthema in the form of red spots, which shortly transform to noduli bullæ, and in the course of a few days to pustulæ. The latter becomes augmented, gradually desiccate, the entire process enduring three weeks or more. I must not forget to mention, that as Keher, Hallier, Cohn, and others in the lymph of *v. vaccina* and *humana*, so Klein has found

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in that of *v. ovina* microparasites, as spherobacteria, some of them taking the form of streptobacteria. As the most malignant forms, authors designate confluent and hæmorrhagic variolæ, as complications; the development of abscesses, variolic eruptions upon the mucosæ, sometimes death from pyæmia, or tetanus. Young animals generally give way to the disease. The loss generally amounts to 25 to 30% of the diseased animals, in favorable cases 6 to 15%, in the most unfavorable 50% or more.

With regard to its ætiology it must be emphasised, that the contagium of *v. ovina* corresponds in every direction with that of *v. humana*. It is fixed and volatil (dispersing), and chiefly present in the contents of the pustules, less concentrated in the blood, with which successful inoculations may be made. It has an important degree of tenacity, and under favorable circumstances, retains its vitality in a stable, for a year or so. The infection takes place in the same way as by *v. humana*, that is, as a rule, by inspiring the contagium which is suspended in the air into the lungs. The same is also in a high grade transmittable by means of vehicles, and is also capable of inoculation. Most all sheep are disposed to the same, on 1 to 2% remaining immune, in occasional cases, 21%. Convalescent animals remain immune from further attacks. The abiogenitic origin of *v. ovina*, which was in times past pretty generally accepted, has, at present, scarcely as supporter.

Ovination has been and is one of the most important prophylactica against *v. ovina*, and will even in details bear a close comparison with the variolation, introduced in the last century as a prophylactum of man against *v. humana*. The artificially generated *v. ovina* takes a much milder course than the natural; sometimes however a general exanthema develops in consequence of inoculation instead of the local inoculatory pustule. The loss by ovination ("Stutzimpfung"), which is generally performed on young sheep amount in favorable cases to only 0.03%, in unfavorable cases to 0.1—0.2—12.0%, while by the so-called *peremptory inoculation* ("Nothimpfung") it amounts in favorable cases 1—2%, and in very unfavorable to from 10—18%. As is evident, these figures correspond with the results of human variolation, which also gives a loss of 0.3—1.0—2.0%. Self evidently the con-

tiual inoculation of young sheep must lead to continued outbreaks of ovina variola in a milder form, which conserves the contagium, and in all probability contributes to an extension of the ovina varolic pest; this form of prophylaxis is only then advantageous, when extended to all sheep without exceptions, and as carefully regulated by the veterinary police as if a natural pest were devastating the land. There is no doubt, that the frequent and devastating outbreaks of v. ovina in North Germany are owing to the custom of ovination which prevails there, (and which deports itself in the same manner as variolation in the last century), without subjecting the herds with the artificial disease, to the same restrictions to which such are subjected when the natural disease is prevailing. Ovination, has luckily by us in Germany, passed its days of bloom.

From the entire pathology of v. ovina, we see that the same and v. humana are throughout homologous diseases which, while corresponding in every direction, yet stand at present in no direct relation to each other. In no case has it been observed that v. ovina proceeds from v. humana, or vice-versa. An important property, which is however common to all forms of variola, appears to be, that vaccina, the relation of which to v. humana we shall presently discuss, has the ability to protect sheep from outbreaks of v. ovina.

[TO BE CONTINUED.]

## TYPHOID FEVER IN HORSES.

By A. DRINKWATER, V.S., ROCHESTER.

Read before the Rochester Veterinary Medical Association.

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During the summer of 1876, while practicing in Belleville, Canada, I had a great number of cases of typhoid fever in horses, a few of which I will endeavor to describe, also the treatment which was adopted.

My first case was a six-year-old horse, the property of a Mr. Vandusen, a mill owner of that town. The stable in which this

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animal was kept is built on the water's edge, and was at that time completely surrounded by water so that planks had to be used to get out and in. I will just mention here that the water in this bay becomes covered with a greyish substance resembling frog spawn. It gets in this state about the middle of June and remains so until about the first of August; it is during this term that this disease is the most prevalent, and is almost entirely confined to the bay shores and to animals which have access to its waters.

I was called to the case just mentioned on the 2d of July. I found the animal lying and unable to rise, pulse about 70, soft and weak or thready; breath foetid; tongue covered with a grey substance; pressure on larynx caused much pain; Schneiderian membrane was of a purple color; on passing my hand to the back part of the mouth I found the tongue much swollen; on withdrawing my hand the smell emitted was very offensive. I thought it advisable to try and get him on his feet, but before making the attempt I gave a powerful stimulant, got plenty of help and raised him on his feet, but he was unable to stand; he was let down and made as comfortable as possible. I ordered him to get a pint of good ale every two hours until the following morning, when I visited him again, got him on his feet, he being able to stand alone. He ate a little bran mash, passed his urine, which very much resembled linseed oil; his bowels being constipated, I gave him linseed oil, a pint and a half, also 3i of pot. nit. and kept up the stimulants until the throat was stimulated with ammoniacal liniment; I left him standing, but the attendant said he did not remain on his feet long after I left. I visited him on the following morning and found him very much worse, pulse almost imperceptible at the submaxillary artery; breath very foetid; tongue much swollen, and large quantities of ropy saliva coming from the mouth; extremities cold; respirations labored; I saw death was fast approaching; he lived about five hours.

A post mortem was held by myself and Mr. Newton, a student practicing with me at the time.

On opening the body the foulest odor was emitted; on removing the intestines they were found healthy; the stomach was

very much inflamed; kidneys slightly enlarged, but no inflammation had existed; the lungs were next examined and found slightly affected; the pharynx was covered with patches of ulceration extending to the back part of the tongue; the tongue itself was crusted over and had the appearance of being burned with a hot iron.

This animal had been allowed to drink this water; his feed was also made wet with it; there was also a mass of decomposed matter in his manger which, on being moved, had a very offensive smell.

The next case I had was a few days after. A cart horse was brought to me for examination. The owner said he was off his feet and appeared dull and weak, had no ambition, &c. I took his pulse, which was rather weak, although quite natural in other respects; the eyes were glassy and the tears were trickling down the face. I gave him  $\frac{3}{4}$  i spt. nit.,  $\frac{3}{4}$  i p. gentian rad, combined with half a pint of ale and gave a powder of pot. nitrates to be given that night, told the owner to let me know in the morning how he was. He came to me in a great hurry, said his horse was down and could not get up; I went and saw him; found him in the same arn, and unable to get up; gave him a stimulant, got him up, had him removed to another stable; this horse was fourteen or fifteen years old and only lived about 48 hours after I first saw him. He was also examined after death. The only difference to be seen was that the lungs were more affected in this than in the former case. From want of time the examinations were not carried out as closely as I would have liked. I am satisfied that the first case which I have described was caused by the use of this water, which is no doubt poisonous at the time this substance is floating in it; the second case may have been caused from atmospheric influences, although the animal had been allowed to drink the same water and get the same kind of food; the stable was also well cleaned out.

During the same summer I was called in consultation with R. H. McKenney, V.S., of Picton, Prince Edward Co., to a case of the same kind being caused by the animal drinking impure water from a small pond situated on his neighbor's farm; I found



the animal standing and large quantities of saliva coming from the mouth, of a greenish color; he would endeavor to drink, but could not swallow; pulse intermitting; there was evidently some derangement of the heart's action; this animal died during that night. I did not see him after death, but was told there was a great quantity of water collected in the pericardial sack. This gentleman had two more horses taken in the same manner, but they were saved; we went to the farm where the pond is situated and found three of his horses sick, showing the same symptoms as his neighbors', one of which died, the other got better. The disease did not make its appearance until after a heavy rain had riled the water. There is no doubt that drinking this water was the cause of this outbreak, because their stock were the only ones affected and the only ones that had access to this pond.

I will mention another instance where I believe ill drainage and impure air was the cause: Sometime during the winter of 1876-'77 there was considerable excitement in and around Belleville caused by a report that several valuable horses had died in the township of Huntingdon from some new or mysterious disease. A quack was employed to attend those cases; after losing four very fine animals, he threw up the sponge, saying he did not know what the disease was. I was then consulted and requested to send some medicine for a colt that was sick, but I declined, saying I could not treat so dangerous a disease as what I suspected without seeing my patient; he concluded not to have me go out because it would cost so much. He went home, found the colt dead and four others sick; he came back post-haste for me; I went out, got there about three o'clock in the morning, found quite an army of men and boys awaiting my arrival; I was hurried into the stable and found the air almost suffocating; I ordered the sick animals to be covered warm and the doors and windows thrown open; I then proceeded to examine my patients, two of which had partially lost the power of deglutition, breathing short; mucous membranes of a purplish hue; pulse about 70°, and weak; the muscles of the body relaxed; legs cold. I gave each one a good stimulant combined with 3 i pot. nitras, bandaged the legs, stimulated the throat with ammoniacal liniment; in

about two hours each patient got raw lin. oil, 1 pint sod. bi-carb, 3 ii; the after treatment consisted of hypo. sulp. sod. in two drachm doses twice a day, the stable well disinfected with carbolic acid. In a few days gave tonics composed of ferri. sulp and nux vomica.

On removing some of the flooring, the space between it and the ground was completely filled with efete matter which, there being no drain, could not get away; the floor overhead was also very tight; there had been eight horses confined in this stable with their heads together; one thing I remarked that all the horses on one side of the stable were the first victims. Why it should be so I am not able to tell.

A. DRINKWATER, V.S., Ontario.

## ETIOLOGY OF SPAVIN.

BY WILLIAMSON BRYDEN, V.S.

*Read before the United States Veterinary Medical Association.*

In the disease of the horse's hock, known as bone spavin, one of its most important characteristics is a new formation of osseous tissue. Such new formations have been carefully studied, still, when occurring among the lower animals, especially the horse, differences of opinion are held by veterinary surgeons as to their etiology and pathology.

*The remote predisposing causes of bone spavin are*, the natural peculiarity of form of limbs, and inferior quality of the tissues of the limb when the young animal happens to be the offspring of parentage *not* robust, but marked by disease, especially of their limbs.

*Less remote causes are*, acquired peculiarity of form of limbs and quality of their tissues, or defects and inharmonious and weak development—of a faulty functional and nutritive nature—especially among *young growing animals*, when the climate, character of the country, or the owner's method of management subjects

them to restraints incompatible with the robust development, especially of their locomotory organs.

*Still less remote causes* are work for which the animal is not adapted, and improper shoeing and management.

*The causes of the new-born formation* are repeated or continued irritation from strains, at the points of attachment of muscles, tendons, and ligaments to bone, and continued or repeated irritations or inflammations of the soft tissues of joints, connective tissue metamorphoses, injuries to cartilages, metamorphoses of cartilage, so-called physiological hypertrophy, interstitial new-born formation, wounds, direct injury to any joint from overwork, &c.

In all weak and imperfectly developed limbs, we find hoofs equally imperfect and liable to disease. From its peculiarity of being a "horny box," the hoof may either confine and interfere with the circulation and nutrition not only of itself, but of the whole limb; or it may, when weak either from want of tear and wear by exercise, or other cause, imperfectly protect the extremity, thereby exerting an influence on the limb quite as pernicious.

Such peripheral disturbances intensify previous weaknesses of the limb. In the young it may only impair, or arrest growth for a while, but in those older it leads to new changes in its form and position, and in the length and quality of its parts, if not remedied by proper management.

I have never yet examined a recently sprained hock, without finding changes in other part of the limb *and in the form of the hoof*, which must have *preceded* the pathological changes in the bones; consequently, whatever changes take place in other parts of the limb, *after* such new-born formations are apparent, whether concurrent or as the result of the new-born formation, they must have been *preceded* by an imperfect condition of the limb of equal if not greater importance. *There is such an uniformity in the shape of hoofs of recently strained limbs, that even when detected they will, when more closely studied, indicate the character of the hock with as much certainty as the horse's teeth now indicates his age.*

When the foot of a limb obnoxious to spavin is placed on the

ground it is seen by the way the shoe is worn that the weight is thrown on the outside toe; this is evidently to save the inner quarter or heel, which, if brought in contact with the ground in progression would cause pain. If, therefore, one part of the foot—the base—is doing more than its share of work, or doing it disadvantageously, it is equally probable that parts of the superstructure—the limb—are also placed at a disadvantage. In a limb thrown out of *balance* in this way, the position of the bones is changed; some of the muscles and tendons may shorten, while others relax. The metatarsal flexor, especially the tendinous portion and the ligaments, of whatever part of the hock is first affected at their insertions, are subjected to more than usual *strain*, sometimes accidentally violent perhaps, but in many cases an *often-repeated* or a *continued gradual strain*. In young limbs this may at first give rise to only a slight projection, or what might be called perhaps a *physiological* hypertrophy. When the irritation is kept up or some degree of inflammation, a greater area of the hock becomes involved and ankylosis more or less complete takes place according to the age of the animal, the richness or poverty of the tissues of the joints, the powers of resistance of the cartilages, and the demand made upon them.

In pathological new-born formations there is usually more or less degeneration of the original tissues, especially of the cancellated structures of the interior of the metatarsal and cuneiforms, sometimes atrophy appreciable of the metatarsal either from the new formations being developed at the expense of the original or from irregular or diminished supply of nutritive and vital power.

The spavin, therefore, is very seldom the only difficulty to be overcome or the cause of all the other changes. Consequently, if the conditions of the limb which predisposed it to spavin continues to exist unnoticed, the application of remedies only to the hock is patchwork as empirical as it is unscientific.

Discussion followed the reading of the paper:



## ABORTION BY COWS.

By L. FRANK.

(DIRECTOR OF THE VET. INST., AND PROF. AT THE AGRICULTURAL DEPARTMENT OF THE POLY-  
TECHNICUM IN MUNICH.)Translated from the *Deutsche Zeitschrift für Theiromedicin.* Vol. 3, Part 5, p. 368.

By J. GERTH, JR., OF NEWARK, N. J.

STUDENT OF VETERINARY MEDICINE AT BERLIN, GERMANY.

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We have diseases which endanger the life of cattle very little, and can hardly be compared with the dreaded pestilential diseases which attack them, but still they have an important effect on the regular management of breeding, and therefore seriously damage agriculture by their yearly sporadic appearances. Whilst the pestilences endanger or ruin the capital invested in animal life, there are others which not only destroy the profits expected from breeding, but also endanger the capital at the same time. To the latter belongs the frequent occurrence of abortion among cows and mares. Through abortion—although statistics in this direction are entirely wanting—the stock raiser often has to suffer a greater loss than by an epizootic disease. This is not only the case here, but also in foreign countries, where we are constantly hearing similar complaints. It is essential to the progress of medicine always to endeavor to seek the exact causes of diseases, for we can only by this means expect a successful treatment after we are intimately acquainted with the enemy with whom one has to fight. With abortion it is of particular importance that we should become well acquainted with its causes, since the whole treatment rests upon their removal and prophylaxes.

It is a well known fact that a large number of external circumstances, such as feeding with improper food and the like, can produce abortion. This form of abortion, although often acquiring great extension, especially through the distribution of unwholesome food, is what I would like to call "sporadic abortion," in opposite to the infectious abortion, which is produced by the action of infectious matter. The latter form of abortion receives the most attention at the present day, and is of very great importance

to agriculture. We will next look somewhat closer at the causes of sporadic abortion, in order to get a better understanding of the ætiology of infectious abortions. It is known that all stimuli producing a contraction of the uterus, can finally lead to abortion. A very important fact is, that the uterus, even in the various stadia of pregnancy, possesses a different degree of irritability, and that non-grovid uterus can only be contracted through strong irritations, whilst the least irritation is sufficient to produce this effect by a grovid uterus. It is known that the irritability of the uterus proportionally increases as pregnancy advances, and that these irritations, which are always found in the way, finally lead to contractions of the uterus and natural birth. We know that the irritability of the uterus increases with the temperature of the body, certainly within physiological limits, and decreases with decrease of the temperature. It is also known that the contractibility of the uterus can be annulled through carbonized blood. From the preceding, it may easily be understood that under all circumstances, where the temperature of the body is continually being increased, and where blood of the above mentioned character is being formed at the same time, abortion is liable to occur.

By quick movements of animals in pregnancy, by continual overwork, and in morbid conditions, where the excretion of carbonic acid is rendered more difficult, and where a higher temperature is existing, the case is the same; for example, by phthisis, influenza, etc. The frequent abortions following these conditions are easily explained. Colic and tympanitis are also often followed by abortion. Its origin is not so much dependent upon the large expansion of the intestine as in the retention of carbonic acid. It may be mentioned that the respiration in this case is doubtlessly rendered very difficult through the considerably expanded abdomen by pregnant animals, and would be rendered still more difficult where it is not counteracted by the powerful heart action and general hyperæmia.

Among pasturing animals, abortion is often produced to a large extent by their partaking of frosted grass, frozen potatoes, &c. Evidently the cause of this phenomenon is influenced by cold. Herrmann and Gantz have proved that severe anæmia of

the stomach and intestinal canal may arise through the direct action of cold, which may extend to the pregnant uterus. Uterine contractions may be released by sudden fluctuations in the quantity of blood supplying the uterus, or by a sudden appearance of anæmia.

Abortion is frequently caused by the partaking of blighted food. Some parasitic fungi which are found upon cereals are said to cause it. The rye-fungus (*sclerotium clavus*) is the most common. In some years' growth it is not only to be found upon rye, but also on other gramineous plants, such as broure-grass (*bromus*), English rye-grass (*solium perenne*) and others. One form of the rye-fungus, the "*clariceps microcephala*," is found in some districts in extraordinary large quantities upon red grass (*sparganium*). In countries where pregnant animals have to pass over the commons, or places where such straws have been outspread, it has been noticed that abortions are quite frequent. In countries where Turkish corn is cultivated to a very great extent, a fungus found upon maize has been noticed to cause abortion frequently. Twenty-four grammes of the latter given in two days, have been sufficient to cause abortion by two dogs. Other food, which has been spoiled by fungi, can also produce abortion. The cause of such abortions is generally to be sought in the fungi or their production. There are a large number of other poisons worthy of an organic nature, which act in a similar manner. It is very interesting to see how abortion generally sets in by the daily assumption of the smallest quantities of certain poisons. According to this, large doses of these poisons are not always necessary in order to produce such an action; it is a fact, that a kind of cumulative action can easily take place. In the human subject very interesting observations have been made in this direction.

By Dr. Ludwig Hirt, it was statistically proved that abortion is very frequent among females employed in lead, phosphor, arsenic and aniline factories. In a lead factory there were, out of 141 pregnant females, 82-85% which aborted. Hirt has experimented with aniline on pregnant rabbits and dogs, and found that aniline produces abortion in an exorbitant manner. The longest period which took place between the administering of



aniline and abortion was fourteen hours. It was discovered that certain poisons can gradually penetrate into the body of the young. Lead was found in the embryo of mothers, who were working in rooms in which the air was impregnated with lead. It cannot be doubted that the child suffers where the mother lives in a poisonous atmosphere. Statistics collected by Dr. Constantin Paul, show that seven hundred and eighty-five (785) children were born dead, respectively aborted, out of one thousand (1,000) born by women employed in lead factories. Is it not very likely that similar circumstances may take place among our domestic animals? And it is very probable that through the continual partaking of small quantities of poisons, such as septic substances, which are often scattered extensively in stables, a similar pernicious state should gradually form itself in the embryo without injury to the health of the mother?

I do not wish to state any other cases, which are apt to be followed by abortion, such as mechanical injuries, physical influences, or the placenta becoming diseased, diseases of the ovary, &c., but will pass directly to the consideration of infectious abortion.

Cases of abortion have for a long time been observed, where none of the above mentioned causes were known to produce them. Cases have been noticed in model stables, where animals aborted by soured food, one after the other, whilst in neighboring stables no abortions were observed, by the same food, and the same dietetic regimen. We may often observe abortion to extend in a certain succession from one cow to another. Whilst changing of food has little or no action, in these cases, abortion may, nevertheless, be suddenly checked, by removing those animals which have not yet calved, into another stable. It is natural that observations of this kind can only be made at large farms, possessing a number of cattle, where a number of animals calve at the same time, or at short intervals. On small farms, where young calves are only born at very long intervals, this singular progress is less apparent; Johne\* has observed and described a case of this kind, where through a sewer, abortion spread from one cow to another.

\*Sachs. Jahresbericht über das Veterinärwesen 1872. S 134.

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\*Thannenhaner has also drawn attention towards it, that whenever a cow cast before time, the neighboring cows were the first to follow, and supposed it be caused by infection. A number of cases where abortion was suddenly checked, by removal of the animals into different stables, speaking decidedly for themselves, that there must have been something contagious existing in the stable, which could produce abortion; consequently one feels justified in assuming the presence of some infectious matter. Finally the question come before us: 1. What is this suspected infectious matter, and from whence does it generate? and, 2. In what manner does it penetrate into the pregnant animal, and thus produce abortion?

While the question, whether there is actually such an infectious matter existing, must be answered in the affirmative, yet we soon become aware of our own ignorance, by attempting to answer both these questions: "What is the infectious matter producing abortions, and where does it originate from?"

I will here state a very important experiment of Braner † and thus try to answer the above questions.

Braner, after finding bacteria in the vaginal mucus, and in some cases in the after-birth—of an aborted foetus, attempted to produce abortion experimentally. He brought small quantities of vaginal mucus into the vagina of a cow which had calved a day previously. About nine days later abortion followed. Several other observations gave a similar result, with the exception, that abortion did not take place until eleven or fifteen days.

Out of these experiments two phenomena present themselves.

1. That some infectious matter actually is contained ‡ in the vaginal discharge of cows, which have aborted, and
2. That, the direct introduction of this matter into the vagina of a healthy cow, can produce abortion.

This fact is a matter of great importance. But it has by all means not yet been decided, what the infectious matter itself is, whether an organic ferment, as Hiller assumes, or whether a vege-

\* Sachs. Jahresbericht über das Veterinärwesen 1870. S 139.

† Vgl. Sachs. Jahresbericht 1873. S. 86.

‡ Braner found bacteria in it. But I leave it undecided, whether the bacteria represent the infectious matter, or if the bacteria only accompany it.

table organism. That an apparently infectious element may be developed by a cow which has aborted is a sufficiently important fact to demand further attention. If one examines other cases of abortion closer, the suspicion at once forces itself upon us, that abortion generally is produced through putrified or septic matters. Several cases are known to me where cows aborted, that were standing by the side of a cow whose secundine had become decomposed.

The case of Johne's endorses the above, for in his case also, abortion extended from a cow which had remained sick for some time after the abortion. In two other cases, two cows, which were examined for pregnancy per vaginam aborted, after each had been released from a decomposing secundine on the forenoon of the same day. Certainly in the latter case, the objection could easily be made, that this examination caused the abortion. This may be the case, but still I must explicitly mention, that I have examined cows in great numbers for pregnancy per vaginam and never found abortion to set in, with the exception of the two above stated cases. The following cases also seem to endorse the above views, by which a large number of cases of abortion appear in flocks of sheep, caused by retention of the after-birth or by being accompanied by septic inflammation. While these views are in a high degree speculative, yet it must however be confessed, that they have a strong character of probability. We must yet make closer observations and special experiments in order to clear this matter up.

We now come to the question, How did the infectious matter gain entrance to the pregnant animal? There can only be two direct ways:

- (a.) The direct entrance through the vagina, and
- (b.) The entrance through the air passages.

The reception through the alimentary canal is very improbable. On the one hand the processes of digestion would most probably destroy the infectious matter, on the other hand the epithelium of the intestinal canal is less favorable to reception of the infectious matter.

Bauer's case has shown that abortion can be produced through the vagina.

This seems the most probable; as the vagina offers the most favorable conditions for the reception and formation of bacteria. But still it is difficult to comprehend, how the infectious matter gains access to the young, as

1. Ordinary infectious matter cannot enter through the uninjured vagina, and it is a fact, that we never find the mother animal complicated by infectious abortion.

2. We know, that the amnion of the young constitutes a filter, which can retain the most minute body at least for a length of time. We also know, that by pregnant, and animals attacked by anthrax, we never find anthrax-bacteria in the blood of the foetus, whilst large quantities of them are met with in the blood of the mother. Yet it seems, as if by longer action than is the case by anthrax, the infectious matter can manage to penetrate from the vagina to the uterus, and through the amnion into the amniotic fluid, and even into the blood of the young. The following supports this opinion, viz: that the lambs of sheep affected with variola cannot become infected through the ovine for a long time after their birth, and consequently must have been "vaccinated" in the womb. The following case of Dr. Hausman's is of special interest:

He states that in an aborted four month old foetus, he found a large number of movable and immovable bacteria in the amniotic fluid, as well as in the serous effusion in the thorax. The amnion was closed completely. It is therefore most probable that they were already contained in the uterus and penetrated into the foetus through the amnion. Since the mother remained healthy, one cannot conceive that the bacteria penetrated from the blood of the mother into the foetus. It is more likely that they reached the foetus through the vagina.

On this account it would be of great interest to examine the blood and amniotic fluid of the aborted young—as fresh as possible—for bacteria, and experiment with them, to prove their infectiousness.

These facts tend to show that infectious abortion is due to the

action of a contagion, the real nature of which, at present, escapes our attention.

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## EDITORIAL.

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### GLANDERS.

In our last number we presented our readers a copy of an act passed by the Legislature of the State of New York relating to diseased animals, specially to those affected with glanders and farcy. We reprint to-day a similar act passed by the Legislature of the State of Massachusetts.

That special legislation had become necessary to check the spread of these diseases is well manifest to all those who are engaged in veterinary practice, and cannot but be approved by all owners of horses. By experience we all know that glanders is always prevailing more or less in our large cities, and that in our large horse establishments many animals are yearly destroyed on account of their being thus diseased. From recent statistics which we have made in an official capacity, we can furnish our readers some interesting statements, relating to the existence of glanders in some of our stables in New York city. In one, at one visit we condemned 8 horses; in another, 18; in a third not less than 25, and at subsequent inspections a total of 20 more. In one establishment we were told by the president that the loss last year, had been from glanders and farcy alone, 200 horses. Representing these at the low rate of \$125 apiece, it is for that company alone, a loss of 25,000 dollars.

The question naturally presents itself. What is the cause of such epizootics? We may without difficulty understand it when it is known that almost none of those companies employ Veterinarians to look after their stocks, and that those who fill the place of Veterinary Surgeons are generally entirely ignorant of the nature, and above all of the symptom of the disease and of its many insidious and varied forms.

That one who has seen a well marked case of glanders, with



its characteristic gland, its sticky typical discharge, its peculiar ulcerations, or a case of farcy with its well developed cutaneous manifestations of swellings, corns or farcy buds; that he may in many instances have no trouble to recognize such condition and condemn the animal which present them, is no proof that he is competent; as the veterinarian of education knows that dangerous as this form is, contagious as it will prove, it is not, when presenting all those well-marked symptoms, that the affection is most dangerous and the animal most to be feared. No. It is in the form of latent glanders, in the form of laryngeal glanders (as the French call it), for then the symptoms are scarcely apparent. they are easily overlooked and still the disease is just as contagious, In this form, where perhaps but little symptoms exist, and where in many cases, no apparent lesions can be detected, except by careful observations, the animal can have all the appearance of perfect health and still be a permanent center of infection. There is no doubt in our mind that cases of latent, internal glanders were the immediate cause of these great outbreaks, as they have already proved to be, in large establishments in Europe, specially some years ago in Paris. Glanders is an incurable disease, and with it the only way to guard against its wide spreading in those establishments, is by prevention—prevention which cannot be obtained except by general inspections of the entire stock—inspections which ought to be made often and at regular intervals.

We hope that the lessons so dearly learned by these companies will be a stimulus to show them the necessity of employing *competent men* to look after their horses and to guard them against a renewal of such pecuniary loss; a small fraction of it would handsomely remunerate the services of a good Veterinarian.

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JURISPRUDENCE.

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## VETERINARY JURISPRUDENCE.

*Read before the Montreal Veterinary Medical Association, by D. McEathran, R.C.V.S., President.*

CONTINUED FROM PAGE 81.

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## SOUNDNESS.

By the French law the seller is bound to warrant the buyer against the following diseases: specific ophthalmia, amaurosis, epilepsy, glanders and farcy, chronic diseases of the chest (*Les Maladies Anciennes de poitrine ou Vieilles Courbatures*), broken wind, chronic cough, crib-biting (with or without wearing of the teeth), inguinal hernia, chronic lameness, intermittent lameness, biting and kicking, horses that are difficult to be shod or harnessed, or employed in any service. If it can be proved that the animal had any of these diseases at the time of the sale, and the buyer uses due diligence in notifying the seller of his intention to take an action *redhibitoire*, even if no warranty of soundness was given, or asked for, the jury must find for the buyer.

The detection of the various diseases and alterations in structure or functions, which are included in the long list of unsoundness recognized by the English and our own Canadian laws, require not only accurate anatomical and pathological knowledge, but a quick eye, and a clear head, for we may rest assured that dishonest dealers will leave no means untried to deceive us, to mislead our judgment, and direct our opinions with a leaning in their favor. To such perfection have these men brought the art of deception, and so replete is their language with expressions which mislead the unwary, that the examiner, while he must keep his eyes open, must keep his ears closed. For instance, a sand-crack may be filled by gutta percha, or pitch, or a broken-winded horse narcotised, a bone-spavin is said to be 'merely a slight jack,' nasal gleet, 'merely a slight cold,' a cripple, 'just a little groggy,'—to all of which the examiner must turn a deaf ear. Above all things he must assume and maintain an independent, upright position.

His opinion must be unfettered and uncompromised—being neither influenced by friendship, flattery, or money, nor awayed by fear of offence nor threats of withdrawal of custom by either party. On a horse being submitted for examination, he should be allowed to stand at least half an hour; if longer, all the better. He must be observed in the stable. Ten minutes watching of his actions in the stall will often give the key to the weak points. Observe if he is a free feeder, if he coughs while feeding. Navicular disease, corns, and most lameness, will be indicated by pointing, resting or shifting the feet. The lameness of spavin will be indicated by stiffness in moving from one side to the other in the stall, as will also be string halt. His breathing should also be noticed when quiet in the stable. On being backed out of the stall, it will be seen whether he is a shiverer or not, and when being led out any stiffness of action will be noticed. The examiner must now stand a few yards from him in front and critically examine by the eye, the head, chest and fore legs; then, moving to the side, observe his general outline, mode of standing, capulet or enlarged elbow, enlarged knee, fetlock, ring-bone in the forelegs, bog-spavin, curb-capped hock, and ring-bone behind. Taking a position a few yards behind him, he compares the symmetry of the quarters; observe if they are both alike; thorough-pin, wind-galls and interfering should be looked for. The opposite side being viewed in the same way, he should now be led straight out at a walk, the examiner noticing his actions carefully as he walks from him, and especially as he comes back in a straight line to him. He should be trotted in the same way, and any peculiarity of action or lameness noted. He is now to be subjected to a most careful manual inspection, which will be materially assisted by the preliminary observations. The inspector will generally commence by noting the mouth, in which the teeth will indicate the age. The incisors should be carefully examined to discover false marks by which old horses are made to appear young, a process known as 'bishopsing'; but, from the length, shape and direction of the teeth, the artificial mark being irregular and generally deeper, and not surrounded by a ring of enamel, an experienced observer will easily distinguish between the genuine and substituted marks. The incisors will also indicate

a crib-biter, by having the edges worn away. The molar teeth should also be examined to make certain of their being sound and regular. A diseased tooth, or a long irregular one, will often render an animal almost useless, and may result in permanent unsoundness. This part of the examination is too often conducted in a careless manner. The tongue should also be examined. It is sometimes lacerated, or amputated, either of which may cause, not only inconvenience, but may reduce the animal's usefulness and value very materially, and should never be overlooked. The nostrils should be next examined, their size, shape, and degree of dilatation, will indicate the lung capacity, or disease of the respiratory organs. Thus a broken-winded horse will have the nostrils permanently dilated. A small nostril indicates a corresponding deficiency of lung development. The color and condition of the lining membrane should be critically considered. Glanders, nasal gleet, tumors, catarrh, may all be indicated by this membrane, and confirmed by other symptoms. The eye will now be carefully examined, protected from reflections of white objects by shading with a black hat. It is to be viewed from before, behind, and at the sides, observing whether the cornea is clear and transparent. Opacity of the cornea, however slight, is unsound. The aqueous humour should be clear. Mudness or floating specks in it indicate disease. The pupil should be oval, and its borders regular, and should close in a bright light and dilate in a dim one. The lens should be clear and transparent. Any speck or opacity may indicate specific ophthalmia or even cataract. The examination of the eyes should be conducted in a bright sunlight and afterwards in a dark loose box or stable. The ears should next be examined. Tumors sometimes fill up the external ear, or sores may give rise to difficulty in bridling or a tendency to shaking of the head, by which the bridle or halter is displaced. They should be examined also to ascertain the perfection of hearing. Few horses are deaf, yet a deaf horse is an unsound and often a dangerous one. His manner of carrying his ears will generally be an indication of his temperament and intelligence. The lopped ear indicates sluggishness and stupidity, an erect, actively moving ear indicates activity and intelligence. The parotid and submasullary glands should be

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successively scrutinized. Enlargement of either should lead to careful examination of both the upper and lower air passages. The upper part of the head should be free from all swelling, either inflammatory or indurated, the former indicating the existence or commencement of pole-evil, the latter its having existed and its liability to it, thus rendering the animal less useful as well as less valuable, therefore unsound. The neck, especially under the mane, should be free from skin diseases and sores from the pressure of the upper part of the collar. Draught horses are frequently rendered less useful from these causes. The seat of the collar on the side of the neck and shoulder should be free from collar galls or sitfasts. The withers should be examined for fistula. The back for saddle galls, sitfasts or stiffness (anchylosis). The pelvis is now to be carefully observed, by comparing both quarters. A flattened or depressed quarter indicates a previous fracture of the bones which, although in many cases, especially in geldings, does not interfere with his usefulness, lessens his value, and must not be overlooked. In mares it is often more serious, by lessening the size of the pelvis and its relaxation during parturition. The extent of the injury and its effects can only be understood by correct anatomical knowledge of the parts, but even a slight defect in the pelvic bones must be considered unsound. The tail should be examined. If it hangs powerless, it may have been fractured, and although he may be as useful as ever, his market value is lessened, and he is therefore unsound. Melanotic tumors, and diseased bone on the end of the tail (\*exfoliation after amputation) constitute unsoundness. Melanotic tumors involving the anus, no matter how small they may be, constitute unsoundness. The abdomen will now be examined for rupture, the urinary and genital organs will also be inspected, for tumors or eruptions on the penis, dropsy of the scrotum (hydrocele), hernia of the scrotum in the male, cancer, leucorrhoea and ruptured perineum in the female. The examiner will now examine both jugular veins. An obliterated jugular is unsound; a small jugular will indicate a ten.

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\* It is true that this may be got rid of by reamputation, yet tetanus may be induced and result in death; consequently we must consider the animal unsound.

dency to 'staggers.' The fore extremity will be examined for atrophy of the muscles covering the blade bone, thickening and injuries of the flexor brachii, deep seated abscesses ; the chest for atrophy of the muscles, indicating chronic rheumatism or navicular disease ; the elbow for capulet, a tumor caused by bruising of the part by pressure, owing to the animal lying on the caulker or heel of the shoe, which often causes loss of time and is a serious blemish, depreciating the value of the animal and therefore renders him unsound. Enlarged bursæ above the knee, either in front or behind, may not interfere with an animal's usefulness, but reduce his value. Bony tumors of the knee, distended capsules, thickened ligaments or tendons or whatever interferes with or looses the mobility of the joint, renders him unsound. Scars on the knee indicate a tendency to stumble, and should be always pointed out to the buyer. They may merely be blemishes which in no way interfere with his usefulness, but few gentlemen will buy a broken kneed horse for hack or family purposes. A splint, if situated at the head of the bone near the joint, or if large and liable to cause interfering, and while in a growing condition, attended by pain and lameness, is unsound, but, if small, situated low down, and not causing lameness, it does not constitute unsoundness. Osteophyte formations, and bony tumors at the lower end of the cannon bone, are unsound. Osseous formation involving the sessamoids or their groove, or any enlargement of the posterior part of the fetlock, render an animal unsound.

## EXTRACTS FROM FOREIGN PAPERS.

By A. LIAUTARD, M.D., V.S.

### VENTRAL HERNIA IN THE HORSE.

Mr. Chuchu of Alfort, reports a case of that nature which was healed by the application of a pad kept in place by surcingle and straps passing in different directions round the body of the animal and secured on his back ; much difficulty however being encountered in rendering the pad immovable from the situation of the

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hernia little below the cord of the left flank. The animal did well for seven days, but showing some unpleasant symptoms, the bandage was removed and gangrenous complications towards the seat of the application of the pad were discovered. The hernia had entirely disappeared. Though these complications were treated at once, the symptoms increased in character, and the animal died 48 hours afterwards. At the post mortem, an adhesive inflammation uniting the edges of the wound of the different layers of the abdominal walls was discovered, the cicatrix showing already a sufficient strength to resist the pressure of the fingers.

The conclusions of the author are. 1. That a large ventral hernia may be radically cured. 2. That it is not necessary that the reductions and the application of the bandage should take place immediately, (in that case it was not put on until three days after the accident.) 3. That the work of repair goes on rapidly, and that therefore it is not necessary to have an apparatus in position for a long time.—(Rec. Medic. Veter.)

#### AMPUTATION OF THE UTERUS IN A COW.

A cow afflicted with a complete prolapsus uteri presented the following symptoms: an enormous, blackish ovoid mass, exhaling a very offensive odor, protruded through the vulva and hung down to the hocks: it was the uterus. Its size was about three times as large as normal, the mucous membrane dark and thickened, here and there, covered with dirt and manure.

Being washed carefully, it showed gangrenous condition of its walls quite extensively; the tissues soften and infiltrated with foetid serosity and easily torn. The reduction being impossible, amputation was decided upon. An elastic cord, of the size of a fishing line, was used and applied at the base of the tumor with several twists round the whole mass. 48 hours afterwards, the hanging mass was excised some three inches from the ligature and the uterine stump was drawn in the pelvis. A purulent discharge kept up for several weeks afterwards, and then stopped. The cow kept on milking for fourteen months afterwards.—(Journal de Zootechnie).



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EPIZOOTIE AMONGST CATS PRODUCED BY THE *TOERNIA CRASSICOLLIS*.

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During the summer of 1876, Dr. Leoncini was informed that many cats in his town had died without apparent cause, after presenting the following symptoms: gradual diminution and loss of appetite, diarrhoea followed by constipation, abundant salivation, contraction of the elevator muscles of the upper lips, great prostration, lack of vision; in some, appearance of deafness; in a few vomiting, some nervous phenomena, epileptiform convulsions and often colic pains.

In the post-mortems the principal lesions were found in the stomach, whose walls were much retracted and the seat of a catarrhal inflammation. It contains a long worm white and flat; the intestines were empty and the seat of a chronic inflammation; all the other organs were healthy.

The parasite was flat, white, formed of rings about 12 centimeters long and 5 or 6 millimeters wide; it was a true *toernia* as the microscopic examination of the head showed it.

On inquiries as to the cause it was found that many cats had been imported to destroy the rats of the place, and that the best hunters were those who died the first.—(*Giornale di medicina veterinaria pratica*).

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TREATMENT OF THE CARTILAGINOUS QUITTOR BY CONCENTRATED CARBOLIC ACID.

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Mr. HARTENSTEIN strongly recommends this mode of treatment. In eight severe cases of several weeks' standing the treatment was stopped from the third to the eighth day, he considering the disease as cured the moment the purulent discharge has become of good nature and reduced in quantity. His *modus operandi* is as follows: the parts being thoroughly cleaned and dried afterwards, liquid carbolic acid is injected carefully in the fistulæ slowly so as impregnate all the tissues, the injection being renewed once a day for three, four, six or eight days, according to the condition and extent of the disease—no other dressing.

The advantage of this treatment is to do away principally with



the surgical operation of the removal of the cartilage, which is not without danger, which lays up an animal for quite a long time and to which many owners of horses will object.—(Archives Veterinaires.)

#### INDIGESTIONS FROM WATER—TREATED BY ALCOHOL.

Mr. LECLEEC recommends the administration of alcohol in preference to that of acetate of ammonia, which has but little action; to that of spirits of turpentine, which is too irritating; of camphor and assafoetida, which are of difficult administration or preparation. He considers that the proper agent must be a powerful stimulant of the muscular contractions and of the secretions of the intestines, one which, though in a small quantity, is of easy preparation and administration, of rapid effects and action, and can be found readily everywhere. Alcohol seems to possess all these qualities. Pure, at the dose of about 7 ounces, it stimulates the digestive apparatus, the salivary secretion is increased, the buccal membrane is highly covered, a general surexcitation is produced, the eyes become dull, the motions are less active, the struggles less powerful, abundant and rattling borborygms are soon heard, gases are expressed in quantity, soon followed by fecal matters.

Mr. L. gives from ten to fifteen ounces in three doses at ten minutes apart; about two ounces first, then three or four, and then seven ounces if there is no relief.—(Archives Veterinaires.)

#### ON SEPTICEMIÆ.

BY MR. PASTEUR.

#### CONCLUSIONS.

1. There exist several sorts of septicemiæ or putrid infection.
2. There are several septic vibrios whose physiological properties differ by several essential points.
3. The septic vibrio needs no air to live—not only he lives without it, but long contact with it kills it and destroys it with its virulency.
4. When it develops itself in a liquid in contact with the air,

it is on account of thickness in the liquid and that the vibrio of the deep layers is protected by the organisms of the superficial layers.

5. The septic vibrio lives and multiplies in the perfect vacuum, as in the purest carbonic acid gas. In these conditions, it is entirely modified. It loses its filiform aspect, resorbs itself, and leaves in its place corpuscles, which soon germinate.

6. The germs of the septic vibrio may form a dust that can be carried off by the wind, and that water may hold in suspensions.

7. Even in compressed oxygen, (several atmospheric pressures), these germs will conserve their vitality and their power of reproduction.

8. These germs are fecunds in the perfect vacuum, and pure carbonic acid gas, if they meet with a nutritive matter, proper to their development.

9. Among the microscopical ferments of diseases, and amongst the organisms, whose presence excite or complicate morbid manifestations, are, 1. Beings which are exclusively aerobics; 2. Beings which are both aerobics and anerobics; 3. Beings which are exclusively anerobics.

10. The denominations and classification of vibrios proposed in later years cannot be established, as first thought, from morphological considerations. The septic vibrio, for instance, passes, according to the parts where it is cultivated, through forms, length, and sizes so different that one would think them to be specific individuals—separated and distinct forms from each others.—(Academie de Medecine de Paris).

#### MANNER OF COLLECTING THE VIRUS OF PLEURO-PNEUMONIA, AND MODE OF INOCULATION.

The inoculation of pleuro-pneumonia, says Mr. Robouane, is an excellent measure, providing the virus is well obtained, and its effects can be watched, especially in summer. He proceeds as follows;

An animal being destroyed during the period of acme, the

serosity is collected or in the wall of the different directions. It has coagulated for use, or can be used.

The virus is often used to accustom the animal to the operation.

To operate on the animal and with a bistoury, one on each side of the neck.

The derm is incised and keeps it open with a lance. It allows absorption of incisions, scarification (saignees).

#### CENTRAL

The approbation of the Veterinary Medicine of the President of the Republic, which reads;

Art. 1. The law in Paris, is read.

The Statute is present.

Art. 2. The law with the execution.

The outbreak is thought to have been caused by the virus.

serosity is collected from the parts of the lungs recently infiltrated, or in the way of heptization. To that effect, they are incised in different directions and squeezed; the liquid thus obtained which has coagulated is squeezed again through a fine cloth, and is ready for use, or can be kept in a cool place.

The virus obtained from the dark parts of the lungs gives rise oftener to accidents of gangrene than the liquid gathered as above.

To operate, Mr. Robouane cut the hairs at the end of the tail, and with a bistouri makes three incisions, one in the middle, and one on each side, and a little below.

The dermis alone is interested, an assistant compresses the tail, and keeps it dry from blood. The virus is placed in the wounds with a lancet, the tail being kept raised for a few moments to allow absorption. Complications are prevented by caustics or incisions, scarifications or the actual canterry.—(Archives Veterinaires).

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#### CENTRAL SOCIETY OF VETERINARY MEDICINE OF PARIS.

The appreciation of the work done by the Central Society of Veterinary Medicine in Paris is fully recognized by a decree from the President of the French Republic in date of the 16th of April, which reads;

Art. 1. The Central Society of Veterinary Medicine, established in Paris, is recognized as an establishment of public utility.

The Status are approved such as they are annexed to the present

Art. 2. The Secretary of Agriculture and Commerce is charged with the execution of the present.—(Archives Veterinaires).

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### CORRESPONDENCE.

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#### INFECTIOUS PLEURO-PNEUMONIA.

By CHARLES B. MICHENER, D.V.S.

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The outbreak of pleuro-pneumonia near Clinton, N. J., was thought to have subsided, and no cases occurred from about the

first of January to the first of March, when ten cows belonging to Wm. Young, whose lands adjoin those of G. Michael Freck, (an infected farm) broke out with the disease, five of which died. In this outbreak inoculation was resorted to, after which only four cases developed the disease, and these on the second day after the inoculation. Since then there have been no new cases. Just here let me state in answer to inquiries which I have received, that the cow which communicated the disease in question to Mr. Cramer's herd is *said* to have come from Ohio, but that she did, or that she was not in New York City long enough to contract the disease there, seems to be past finding out.

That this cow did introduce pleuro-pneumonia in that neighborhood there is no question, but that she became infected in Ohio is extremely doubtful.

In my article on this same subject which appeared in the January number of the REVIEW, it was stated that some of the infected cattle "recovered."

I did not intend to convey the idea that the disease is curable, but that cattle may sufficiently recover to return to their milk and lay on fat.

I took it for granted that the profession was entirely satisfied as to its incurability, and hence the loose manner in which the word *recover* was used. In an essay which I read before the Pennsylvania State Board of Agriculture in May, 1877, on this subject, in speaking of the terminations—occurs the following: "Health seems to be reestablished. I say *seems* to be restored; for in almost every case of this kind we find, on a careful examination, more or less diseased condition of the lungs, which is present in a latent form, but only waits the proper stimulus to make it the nucleus of a contagion which may infect whole neighborhoods and bring about all the terrible calamities resultant on such outbreaks," and further on, "Cattle once infected should not be kept for any purpose, but if kept should remain apart from all others until fat enough to kill, and be disposed of in this manner."

To veterinarians the most important point of all is, how shall we deal with an outbreak of pleuro-pneumonia?

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I am opposed to the system of "stamping out," if by that is meant, and I so understand it, that all cattle which have come in contact with the diseased, whether themselves sick or not, are to be destroyed. This plan destroys too many healthy cattle at a loss both to the State and individual owner, or, like capital punishment, from its terrible severity we are apt to be persuaded that possibly some may not develop the disease that have been exposed, and that we are left without the protection which the *more mild yet surer* system of *inoculation* affords. I would not advise any one to keep and treat cattle once infected, but would suggest that at any outbreak of infectious pleuro-pneumonia it be obligatory upon the owners to employ a competent veterinary surgeon, who shall carefully examine all cattle that have been exposed to the contagion, and such as are sick, or become so, to be killed *at once*, and their carcasses buried. All the apparently healthy cattle to be properly *inoculated* and *strictly isolated* from all others.

*That all cattle within a radius of half a mile be inoculated.*

Every State should have its own veterinary surgeon, paid out of the State Treasury, who should be consulted upon the appearance of any and all enzootic or epizootic diseases.

Destroying the sick, and early isolation of the exposed with inoculation will, I think, be successful in eradicating any outbreak of this disease which may occur.

Carversville, Bucks Co., Pa., April 18, 1878.

#### QUACKERY IN THE PROFESSION.

TO THE EDITOR OF AMERICAN VETERINARY REVIEW:

The May number of the REVIEW contains the draft of a Bill before the Legislature of your State regulating the practice of Veterinary Medicine and Surgery, and while it would be of great value to your commonwealth in its tendency to restrict the practice of this import and specialty, to men with at least a reasonable amount of practical knowledge of the science, and also by preventing young men from practicing until they have qualified themselves by a regular course of study, it has no influence whatever

upon the very worst form of quackery which besets our profession, "*quackery in the ranks of the qualified.*"

Veterinary medicine in America is, to-day, advancing with rapid strides toward that higher plane of usefulness occupied by kindred sciences, and were it not hampered by the influences of the evil practices of the past, and by the greedy avarice of the present, its progress would be even more rapid than it is.

The simple fact that many unqualified men are practicing our profession is not an insurmountable, nor, in fact, a very serious obstacle to our advancement; neither are we in want of an appreciative public. But when we look to our own ranks, and behold the flagrant violations of principle, preached every day by some of our members, outside quackery sinks into insignificance in quality, if not in quantity, by the comparison, and we no longer wonder that our sister professions are so slow to extend the hand of fellowship and wish us success.

They are ever ready and waiting to give to us all our just dues, the moment we have satisfied them that self-aggrandizement and mercenariness has been subverted to the interests of true science.

Honest worth, when rightly directed, usually receives from the American people its full reward, and as surely and justly do the bickerings, instigated by the success of a rival, meet with the contempt of all. There is too much of this petty jealousy—that detestable remnant of quackery—existing in our ranks to-day, and no matter how high they may stand in public opinion, or in their profession, at the present time, all who stoop to participate in these disgraceful factious controversies, need live but a short time to find their names in the oblivion of their own production, for there are young workers coming into the field, who will win the race in which the older members have so heavily handicapped themselves with the weight of these nauseous dissensions.

Another evil which is not, as yet, so fully appreciated by the public, yet is more widespread and equally as injurious to the true science, is the deprecable practice of editing a "Veterinary column" in a "sporting" or "agricultural" paper. This is nothing more nor less than what might be called *aristocratic quackery*

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and it is none the less objectionable because indulged in by some very respectable and honored gentlemen who lend a semblance of regularity to the business by being possessors of diplomas.

The editor's assumption that he can intelligently practice veterinary medicine through the columns of a paper, smacks strongly of unlimited self-conceit, and lowers him, at least in this respect, to the level of all those pretenders who attempt to gull an over-confiding public.

That any veterinary surgeon assumes such a position in the honest belief that he is benefitting either the profession or the public, is not consistent with our opinion of the dictates of a highly cultured professional intellect. The objects sought to be attained are evidently the pecuniary remuneration attached to the position, the very questionable notoriety, or the privilege of free advertising; any or all of which are unworthy perquisites to a truly scientific mind.

A possible excuse might be offered where the remuneration was the only means of support, but a reference to the veterinary editors of American papers exhibits an entire absence of any such necessity; and even had we found it otherwise, we are not prepared to believe that necessity should sanction the perpetration of so great a wrong.

Lastly, besides the unjust stigma cast upon veterinary science, is the injustice suffered by the patient, by the client, and by all other members of the profession; for the free bids made for practice by the editors, supplemented by an occasional flattering editorial from the editor-in-chief, places all other practitioners in a false light, and deprives them of a part of their just patronage.

This is felt more particularly by young men just entering upon practice, and we trust that every alumnus of all the veterinary colleges in America will add their censure to an evil practice which should have died with the advent of the first "veterinary editor."

L. L.

## SANITARY LEGISLATION.

### NOTICE.

The undersigned, Commissioners on Contagious Diseases



among Cattle, hereby call the attention of all persons within the Commonwealth to the following Act of the Legislature, approved February 28, 1878:

#### "CHAPTER 24.

AN ACT TO PREVENT THE SPREADING OF CONTAGIOUS AND INFECTIOUS DISEASES AMONG DOMESTIC ANIMALS.

*Be it enacted, etc., as follows:*

"SECTION 1. The Selectmen of Towns, Mayors and Aldermen of Cities, and the Cattle Commissioners of this Commonwealth, shall have, and may exercise the powers, and shall be subject to the duties, for the prevention of the diseases known as farcy and glanders among horses, asses and mules, and for the prevention of contagious and infectious diseases among domestic animals, that are now conferred or imposed upon them by the laws relating to the prevention of contagious diseases among cattle.

"SECT. 2. The penalties imposed by chapter two hundred and nineteen of the Acts of the year one thousand eight hundred and sixty, entitled "An Act concerning contagious diseases among cattle," are hereby made applicable to any violation of law relating to the diseases in horses, asses and mules, known as farcy and glanders, or relating to contagious diseases in domestic animals."

The penalties referred to and applicable in this case are contained in Section 9 of Chapter 220 of the Acts of 1860, as follows, viz.:

"SECT. 9. Whoever knows or has reason to suspect the existence of any such disease among cattle in his possession, or under his care, shall forthwith give notice to the Selectmen of the town, or Mayor and Aldermen of the city where such cattle may be kept and for failure to do so, shall be punished by fine not exceeding five hundred dollars, or by imprisonment not exceeding one year."

Also Sections 5 and 6 of Chapter 221 of the Acts of 1860, as follows, viz.:

"SECT. 5. The Selectmen of the several Towns, and the Mayors and Aldermen of the several Cities, shall within twenty-four hours after they shall have notice that any cattle in their respect-

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ive towns and cities are infected with, or have been exposed to any such disease, give notice in writing to the Commissioners of the same.

"SECT. 6. The Commissioners are authorized to make all necessary regulations for the treatment, cure and extirpation of said disease, and to enforce and to carry into effect all such regulations as may from time to time be made for that end; and any such officer refusing or neglecting to enforce and carry out any regulation of the Commissioners shall be punished by fine not exceeding five hundred dollars for every such offence."

In discharge of the duty imposed by the several Acts above cited, the Commissioners hereby forbid the passage of any horses, asses or mules infected with the diseases known as farcy and glanders, over or along any highway or public thoroughfare, and direct the Selectmen of the several towns, and the Mayors and Aldermen of the several cities of the Commonwealth, to exercise all diligence, to extirpate said diseases by causing the infected animals to be isolated and the Commissioners notified thereof by letter directed to No. 153 Lincoln Street, Boston.

LEVI STOCKBRIDGE,	} <i>Commissioners on</i>	
E. F. THAYER,		} <i>Contagious Diseases</i>
H. W. JORDAN,		

Boston, April 29, 1878.

## NATIONAL VETERINARY CONGRESS IN PARIS.

The exhibition in Paris will be taken as an occasion for the veterinarians of France to have a congress where questions of interest to veterinary surgeons, to the advancement of veterinary science, &c., will be treated during the week included between September the 8th and September the 15th.

The following are the questions to be discussed:

1. Study the means proper to ameliorate the position of civil veterinarians in France.

2. Examine the best mode of organization of the sanitary service and the means to insure its execution.

3. Examine the position that veterinarians ought to hold in the inspection of fairs and markets, of slaughter-houses, as well as in different juries of exhibition as judges.

4. Examine the conditions of admissions in the Veterinary Schools and the modifications to be recommended in their curriculum.

5. Study the question of Veterinary Associations in France.

6. Examine the legislation of soundness (*vices rehibitoires*) and of contagious diseases, &c.

During the congress at some recess the inauguration of the statue of Claude Bourgelat will take place.

Though this Veterinary Congress will be only national, and only French veterinarians will be asked to be present and take part in the discussions, there is no doubt that many members of the profession, foreigners in nationality, but compatriots in their feelings, will be present at this great gathering of veterinary surgeons, and that the profession will be much benefitted by the work of that scientific meeting, where all those questions, though but national in their interest, will be treated.

### EXCHANGES AND JOURNALS RECEIVED.

Revue fur Thierheilkunde und Thierzucht; Rural New Yorker; Ohio Practical Farmer; Scientific American; Hospital Gazette; Medical Record; Turf, Field and Farm; Weekly Gazette of Montreal; Country Gentleman; Journal d'Agriculture; Mouvement Medical; National Live Stock Journal; American Agriculturist; Veterinary Journal; Recueil de Medecine Veterinaire; Zeitschrift des Thiermedizin, &c., &c.

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